A CASE OF MYXŒDEMA TREATED WITH THYROID EXTRACT AND WITH THYROCOLLOID.

Reported from the Clinic of Prof. M. Allen Starr, College of Physicians and Surgeons, New York.

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In the British Medical Journal, March 21st, 1896, R. Hutchison, in a preliminary note, claims that the active material of the thyroid gland consists of the colloid matter. In later papers[1] he gives further data regarding the chemistry of the colloid, and also reports two cases of myxœdema that were treated with that substance. Since the publication of his papers I have administered the colloid to a number of thyroidectomized dogs, but it has not been my good fortune until within the past few months to be able to test the activity of that substance upon a patient with myxœdema, or, rather, upon a patient in which the symptoms of myxœdema had very nearly disappeared. As the results are interesting from a therapeutical point of view, and as they apparently corroborate certain facts regarding the toxicity of the thyroid material, which have been described by me elsewhere,[2] a moderately detailed summary of the history and of the progress of this patient during the treatment may prove of interest to those who have so often remarked the occurrence of toxic symptoms after the ingestion of thyroid extract or of dried thyroid glands.

The patient, J. G., an Englishman from Bolton, æt. 34 years, came under my immediate supervision on February 21st, 1898, in the Neurological Department of Pro-

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[1] Hutchison, R.: Brit. Med. Journ., January 23d, 1897; Journ. of Physiol., xx., p. 474, 1896.

[2] Cunningham, R. H.: Journ. of Exp. Med., iii., 1898.

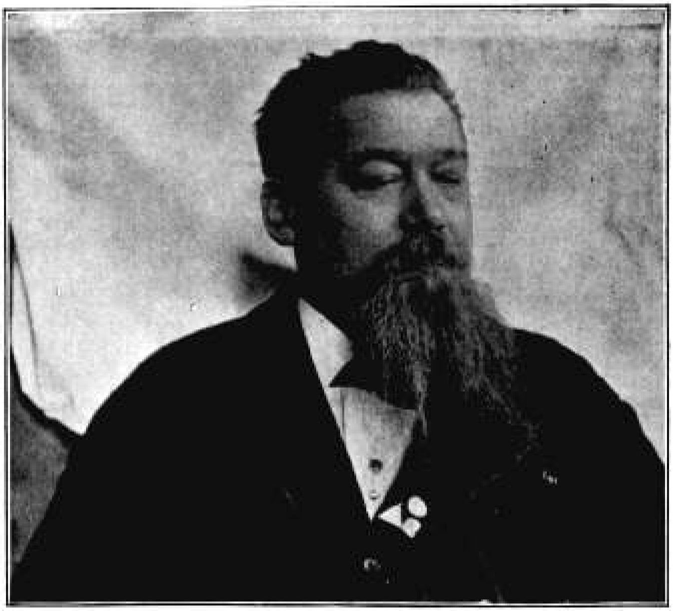

FIG. I (Case I).

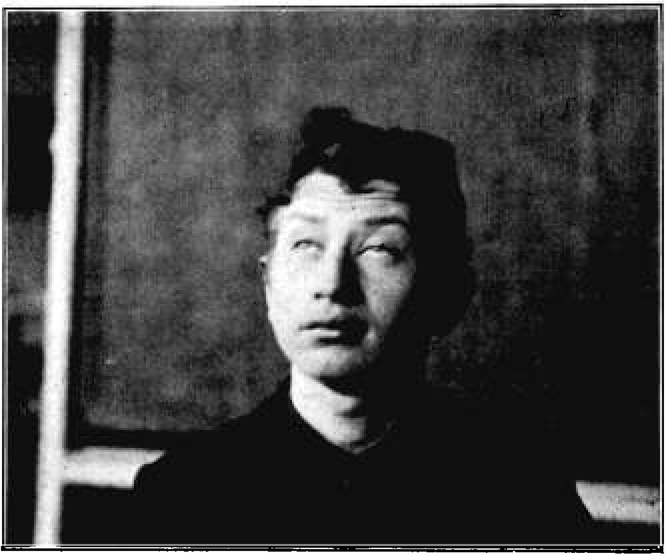

FIG. II (Case II).

fessor Starr, at the Vanderbilt Clinic. From November 22d, 1897, to February 21st, 1898, he had been under the care of Dr. Norrie, clinical assistant in that department, who had treated him very successfully with small doses of the powdered dessicated thyroid of Parke, Davis & Co. Thus, the following summarized history of the patient is from the records of the Vanderbilt Clinic:

November 22d, 1897.—J. G., 34 years of age, bricklayer by trade; chancre in 1886, which was followed by no secondary symptoms, although he received only local treatment for it.

He thinks his present trouble began in 1895, at which time he began to have pains in his back and arms. His arms and legs gradually became weaker, and when he worked he would become fatigued very quickly. In March, 1897, he had to stop work, owing to increasing weakness. He noticed then that his hair was growing thinner. During the past two years his appearance has altered so much that his old friends fail to recognize him. He suffers all the time from the cold, and very often has frontal headache. For one year his gums have been very sore and bleed easily. He weighed formerly about 145 pounds; he weighs now 165 pounds. His appetite is fair and his bowels are regular. His voice has become hoarse and his speech slow.

His hair is thin and dry. The cheeks are flushed, and the skin of the face is firm, that of the arms and legs very firm. The characteristic myxœdematous appearance of the patient is well shown by the accompanying photograph taken by Dr. Norrie. (Fig. 1.)

Temperature of the mouth, 98.5° F.; pulse, 60 beats per minute. Urine contains no albumin nor sugar.

Treatment.—From November 22d to November 26th, he took one five-grain capsule of thyroid (P., D. & Co.) every night. He lost six pounds after taking five capsules.

November 26th —Diarrhœa. Thyroid continued, and a mixture of bismuth, opium and chalk prescribed. December 1st—No diarrhœa; two capsules per day. December 10th—Weight, 147 pounds. The change for the better in the patient's appearance is marked. Skin moist and perspires freely. December 10th to February 16th, 1898—One capsule per day has been taken during this time. Weight, 143 pounds. Capsules discontinued. February 19th—Weight, 146 pounds. One capsule per day. February 21st—Weight, 145 pounds; pulse, 84; temperature, 98.5° F.; occasional headaches and tightness about the head. He feels almost strong enough to go to work. His hair has returned. His appearance has remarkably altered for the better. (Fig. 2.) Capsules of dried thyroid discontinued and .05 gram of thyroid-colloid (A[3]) ordered to be taken, t. i. d., between meals.

February 28th—Weight, 146 pounds; pulse, 72; temperature, 95.5° F.; dose of colloid (A) increased to .1 t. i. d. (1 gram of colloid is equivalent to 1 gram of raw thyroid, according to Hutchinson).

March 11th—Weight (shortly after his dinner), 146½ pounds; pulse, 72; temperature, 98.5° F.; ordered .725 gram of colloid (A) t. i. d.

March 25th—Weight, 142 pounds, after discarding his overcoat; pulse, 74; temperature, 98.5° F. Since the 18th has been working hard every day as a bricklayer. He has had no disagreeable symptoms, and has voluntarily remarked that these new capsules don't seem to affect his head, like those he took at first, in November, 1897. Colloid (A) discontinued.

March 28th.—Weight, 142 pounds; pulse, 78; temperature, 98.5° F.; ordered colloid (B[3]), 1 gram t. i. d.

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[3] The colloid A was prepared from raw sheeps' thyroid glands that had been removed from the animals about one hour before by the following process: The glands were finely ground and mixed with a large volume of .1 per cent. caustic soda, and the mixture constantly stirred for one hour. The mixture was filtered through muslin and the filtrate precipitated by adding acetic acid. This precipitate, or

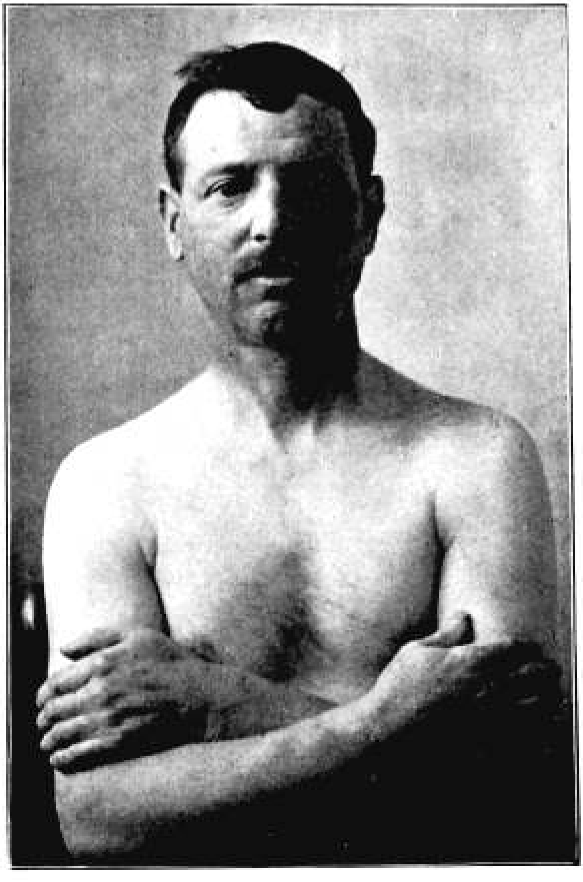

FIG. II.

March 31st —Weight, 140 pounds shortly after dinner; pulse, 105; temperature, 98.5° F. He says that during the past two days he has had headache and pains in his back and arms. Colloid (B) discontinued.

April 18th —Weight, 145 pounds; pulse, 74; temperature, 98.5° F. Has been working steadily and feels in excellent health. Ordered .8 gram of colloid (A) t. i. d. (equals 24 grams of raw thyroid per day).

April 25th —Weight, 144 pounds; pulse, 76; temperature, 98.5° F. No disagreeable symptoms have been noticed, and the patient says he feels like a new man. Since the above date I have not seen him, as he is working out of town.

Remarks:—Owing to the fact that the administration of the colloid was begun at a time when, practically, all of the signs of myxœdema had nearly disappeared from the previous use of dried thyroid, its action in the preceding case by no means strikingly demonstrates that it is the active substance of the thyroid gland. It certainly appears to be active enough in preventing a recurrence of the symptoms of myxœdema, and the progressive improvement in the patient's condition seems to continue from its use. A more definite test of its activity would have been, of course, to begin the treatment with the purified colloid; but, judging from its beneficial action in the cases of Hutchinson that were treated at the outset with the colloid, I think it highly probable that, had the above mentioned man been put upon the colloid in the beginning, the result would have been the same.

Besides the very favorable result effected by the treat-

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colloid, was collected on filters and redissolved in dilute caustic soda solution. This alkaline solution was then brought to the boiling point, and then reprecipitated by adding a few drops of acetic acid. This precipitate was then collected, spread on glass plates, and quickly dried in a strong current of air, and finally pulverized. After the first extraction a large volume of dilute caustic soda solution was again added to the thyroid material, and the maceration allowed to continue for eighteen hours. From this mixture colloid B was obtained by the method employed to obtain colloid A.

ment, the further very interesting feature in the case consists of the non-appearance of any symptoms of the thyroid intoxication while he was taking comparatively colossal amounts of the colloid (A), the colloid that is removed from the fresh glands before any evident postmortem chemical alteration of its constituents has occurred. Although it is conceivable that the chemical. manifestations, the acidification, etc., which were employed to extract this substance from the fresh raw glands might have produced more or less chemical change in the structure of the colloid, and so have altered its physiological action, no evident change seems to have occurred.

Colloid (A), even in doses equivalent to 24 grams of raw thyroid, did not produce headache, restlessness, tremor, heightened temperature, and acceleration of the pulse rate; or, in other words, the various symptoms of the thyroid intoxication. But comparatively very small doses of colloid (B), which was extracted from the same thyroid material as colloid A during a period of eighteen hours, very promptly sent the pulse rate up to 105, and also produced other symptoms of a mild thyroid intoxication. Practically similar, though more marked, effects were noticed by Hutchinson in his cases of myxœdema to whom very small doses of the eighteen-hour colloid were given. Evidently, then, colloid B contains something that colloid A does not contain, and, as I have previously pointed out,[4] this something must develop as the result of chemical changes taking place in some one or other constituent of the thyroid during the long period of its maceration. Consequently, the results described in this report fully accord with those that I have described elsewhere, and this observation evidently further substantiates the conclusion reached in my article on experimental thyroidism that the symptoms of induced thyroidism are manifestations of an intoxication resulting from the ingestion of thyroid material that has undergone more or less chemical alteration in some one or more of its compounds. Whether or not this change consists of a reversion of some of the less perfectly formed colloid back to the form in which it is taken from the blood, according to one of the early theories of the thyroid function, I am not prepared at present to state definitely, for the chemistry of the thyroid gland, as is evident from the generous profusion of various pure (?) active principles, supposedly existing in the thyroid gland, is still too indefinite for one to venture a decided opinion.

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[4] Cunningham, l. c.

134. PRIMARY SPINAL PERIMENINGITIS. Mollière and Perret (Lyon Medical, May 30th, 1897).

Suppurative inflammation limited to the loose tissue surrounding the dura mater of the spinal cord, is exceedingly rare. Cases thus far reported have nearly all been secondary to caries of the vertebræ, traumatism, bed-sores, accumulations of pus in other parts of the body, or acute infectious diseases.

The case reported by the above authors was that of a young man of 20, who, after being exposed to wet, was taken with pain and rigidity in the back and severe cramps in the lower extremities. He was seen by the reporters on entrance into the hospital three days after the onset, when he had a temperature of 40.4 deg., an elevated pulse, and marked signs of some spinal affection. There was a rigidity of the spine, but no opisthotonos and no spasms; the extremities were not paralyzed, although he could not stand or raise himself in bed. The legs were still the seats of very painful muscular cramps; there was slight exaggeration of the knee-jerks, normal sensation, distension of the abdomen, constipation and retention of urine. Treatment was without effect. The patient's general condition rapidly became worse, and he died 17 days after admission to the hospital, the pain and rigidity of the back resisting to the last. The muscular spasm disappeared, but there was no paraplegia.

At the post-mortem examination the brain and its meninges were found to be normal, and the thoracic and abdominal organs showed only existence of general infection. On incising the back muscles preparatory to removing the spinal cord, pus oozed from the intervertebral spaces, and on removing the arches, the entire cord from its third cervical nerves to the cauda equina was found to be bathed in pus. The dura was somewhat thickened, but its inner surface as well as the spinal pia mater was found to be simply congested, with here and there small traces of pus. The spinal cord itself was absolutely normal, as were also the nerve roots. PATRICK.